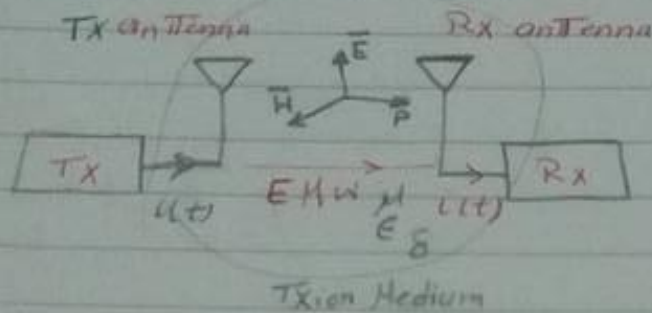


* Define The antenna ?

- [1] \Rightarrow is a system of conductors that converts the electrical signal into electro magnetic wave and vice versa.
- [2] \Rightarrow It couples both the transmitter and receiver to the Transmission Medium.



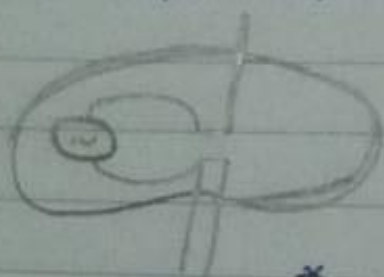
- [3] \Rightarrow The antenna is the eye of any wireless communication system

* Types of the antennas *

- \Rightarrow There are many types of antennas that depend on
- 1- application
 - 2- operating frequency

[1] Wire antenna

[1] Dipole antenna



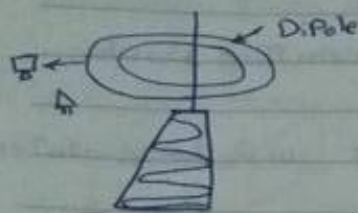
بإشعاع ال Power في كل الاتجاهات
مما يدل على فوه

* 8. Figure على شكل (8)

- * also
* is called (omni Directional pattern)
($D > 1$)

Applications :-

① Used in Radio and TV Broadcasting



② Used in Mobil Communications



* Define

تعريف

Isotropic antenna (Source)



عبارة عن (Volume charge, Point charge)

* Radiate equal Power in all Direction

* عبارة عن كرة اذ جميع موجات تنتشر في كل الاتجاهات (Power)

$$\text{Directivity} = D = 1$$

* Define Directivity

* is The ability of The antenna To Concentrate The Power in a given Direction.

هي قدرة الهوائي على تجميع ال Power في اتجاه معين

② Mono Pole antenna



More Directive Than Mono Pole

Directive اعلى لان الزاوية التي ينتشر فيها اقل (النمط تقريبا بالقطر)

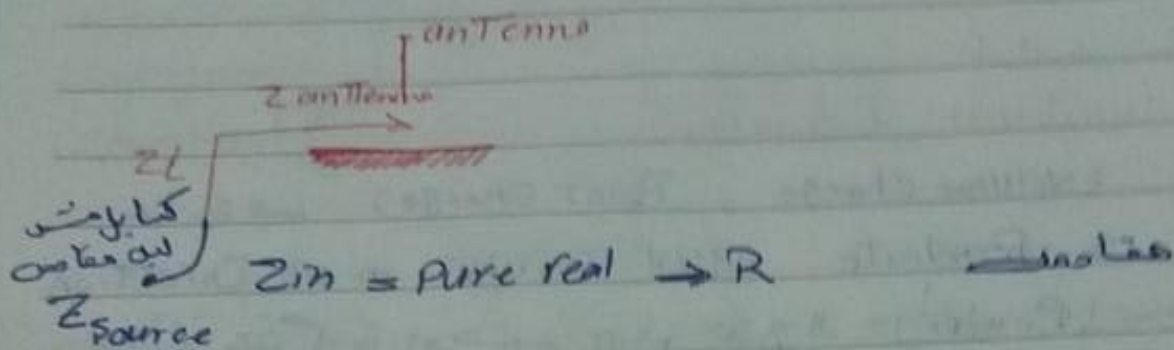
* ال

* Application a

$\frac{\lambda}{2}$ Mono Pole is Used in TV Broad Casting

* Why 22 (1) To Save half of The emitting Power from The Corresponding DiAble.

[2] $\frac{\lambda}{2}$ Mono Pole Provide pure input impedance ante



To facilitate The impedance Matching Process

$$Z_{in} = Z_L, \quad \Gamma = \frac{Z_{in} - Z_L}{Z_{in} + Z_L} = 0$$

$$Z_{in} = Z_L$$